

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : C08L 23/10, 67/00 // (C08L 23/10, 51:06, 67:00)		A1	(11) International Publication Number: WO 00/52094
			(43) International Publication Date: 8 September 2000 (08.09.00)
(21) International Application Number: PCT/US00/01725 (22) International Filing Date: 24 January 2000 (24.01.00) (30) Priority Data: 09/262,478 4 March 1999 (04.03.99) US (71) Applicant: THE DOW CHEMICAL COMPANY [US/US]; 2030 Dow Center, Midland, MI 48674 (US). (72) Inventors: PHAM, Hoang, T.; 707 Walnut Street, Lake Jackson, TX 77566 (US). WU, Shaofu; 2211 Parkview, Missouri City, TX 77459 (US). (74) Agent: CHRISTY, M., Robert; Intellectual Property, P.O. Box 1967, Midland, MI 48641-1967 (US).			(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: POLYPROPYLENE AND POLYESTER BLENDS CONTAINING A GRAFT-MODIFIED POLYOLEFIN ELASTOMER			
(57) Abstract Disclosed are polymer blend compositions comprising polypropylene, a thermoplastic polyester, a graft-modified polyolefin elastomer, and optionally an impact modifier and methods of preparation of such compositions.			

CLAIMS:

1. A polymer blend composition comprising:
 - (a) a polypropylene in an amount from 95 to 5 percent by weight,
 - (b) a thermoplastic polyester in an amount from 5 to 95 percent by weight,
 - 5 (c) a polyolefin elastomer grafted with at least 0.01 weight percent of an unsaturated organic compound containing, prior to grafting, at least one site of ethylenic unsaturation and at least one carbonyl group, in an amount from 0.1 to 50 percent by weight,
 - and
 - 10 (d) an impact modifier in an amount from 0 to 50 percent by weight,wherein percent by weight is based on the weight of the polymer blend composition.
2. The polymer blend composition of Claim 1 wherein the unsaturated organic compound is maleic anhydride.
3. The polypropylene blend composition of Claim 1 wherein the polyolefin
15 elastomer is a substantially linear ethylene polymer or linear ethylene polymer characterized as having:
 - (a) a density of less than 0.93 g/cm³,
 - (b) a molecular weight distribution, M_w/M_n , of less than 3.0,
 - and
 - 20 (c) a Composition Distribution Branch Index of greater than 50 percent.
4. The polymer blend composition of Claim 3 wherein the substantially linear ethylene polymer or linear ethylene polymer is a copolymer of ethylene with a C₃ to C₂₀ alpha-olefin.
5. The polymer blend composition of Claim 3 wherein the substantially linear
25 ethylene polymer or linear ethylene polymer is a copolymer of ethylene with propylene, 1-butene, 1-hexene or 1-octene.
6. The polymer blend composition of Claim 3 wherein the substantially linear ethylene polymer or linear ethylene polymer is a copolymer of ethylene and 1-octene.
7. The polymer blend composition of Claim 1 wherein the polyolefin elastomer is
30 an ethylene, propylene, and non-conjugated diene terpolymer.
8. The polymer blend composition of Claim 1 wherein the polypropylene is isotactic.
9. The polymer blend composition of Claim 1 wherein the polyester is polyethylene terephthalate.
- 35 10. The polymer blend composition of Claim 1 further comprising a filler.

11. The polymer blend composition of Claim 10 wherein the filler is talc, wollastonite, clay, mica, glass or a mixture thereof.

12. The polymer blend composition of Claim 10 wherein the filler is talc.

13. The polymer blend composition of Claim 1 further comprising one or more
5 ignition resistance additives selected from halogenated hydrocarbons, halogenated carbonate oligomers, halogenated diglycidyl ethers, organophosphorous compounds, fluorinated olefins, antimony oxide and metal salts of aromatic sulfur compounds.

14. The polymer blend composition of Claim 1 wherein the polypropylene is an isotactic polypropylene, the thermoplastic polyester is polyethylene terephthalate, the
10 polyolefin elastomer is a substantially linear ethylene polymer which is a copolymer of ethylene and 1-octene and the unsaturated organic compound is maleic anhydride.

15. A method for preparing a polymer blend composition comprising the step of combining:

(a) a polypropylene in an amount from 95 to 5 percent by weight,
15 (b) a thermoplastic polyester in an amount from 5 to 95 percent by weight,
(c) a polyolefin elastomer grafted with at least 0.01 weight percent of an unsaturated organic compound containing, prior to grafting, at least one site of ethylenic unsaturation and at least one carbonyl group, in an amount from 0.1 to 50 percent by weight,

20 and

(d) an impact modifier in an amount from 0 to 50 percent by weight,
wherein percent by weight is based on the weight of the polymer blend composition.

16. The method according to Claim 15 wherein the polypropylene is an isotactic polypropylene, the thermoplastic polyester is polyethylene terephthalate, the
25 polyolefin elastomer is a substantially linear ethylene polymer which is a copolymer of ethylene and 1-octene, and the unsaturated organic compound is maleic anhydride.

17. The composition of Claim 1 in the form of a molded or extruded article.